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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,052	05/30/2001	Gerald L. Swift	00AN170	7166

7590 06/27/2003
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Milwaukee, WI 53202

EXAMINER

ELKASSABGI, HEBA

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,052

Applicant(s)

SWIFT ET AL.

Examiner

Heba Elkassabgi

Art Unit

2834

~ The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7, 8, 10, 11, 12, 15, 16, 18, 22, 24, 25, 26, 28, 29, 30 is/are rejected.
- 7) ☒ Claim(s) 3-6, 9, 14, 17 and 27 is/are objected to.
- 8) ☒ Claim(s) 31-35 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

In response to restriction requirements of office action mailed on November 05,2002, applicant has elected Group I claims 1-30 drawn to the structure of the assembly of the motor.

However, Group II claims 31-35 are still pending in the action since applicant has not canceled the claims. It would be appreciated in response to this office action that the applicant clearly state if the pending claims of Group II claims 31-35 are canceled. For purpose of continuation of examination the examiner will examine Group I claims 1-30 as requested by the applicant.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "#62" in Figure #1 has been used to designate both plate ends and elongated grooves. A proposed drawing correction or corrected drawings are required in reply to the Office action. The objection to the drawings will not be held in abeyance. No new matter should be introduced.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Regarding claim 28, the word "means" is preceded by the word "define and the and with" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the words preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967). No new matter should be introduced.

Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to what the "electrically conductive means", "receiving means", "means for retaining",

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to what the "means for covering"

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 2, 7, 8, 10, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keuper et al. (U.S. Patent 3940647) and further in view of Moore (U.S. Patent 4469971).

Keuper et al. illustrates in Figure #2 an armature core (rotor)(14) having a plurality of spaced apart teeth (not shown) in which the slots (coil slots) (16) between the adjacent teeth. The windings (coils)(18 and 19) are disposed in the associated slots (16) around the teeth and a retaining system (slot closure)(9) is on the distal ends of the teeth to retain the windings within the associated slots (16). Keuper et al. further discloses a sheet (slot liner)(17) cover a substantial part of the windings (18 and 19) in the core (14) and that each sheet (9) has opposed end portions (13) that are folded toward each other over an end of the windings (18 and 19) near the distal end of each teeth within the slots (16). However, Keuper et al. does not disclose the encapsulation material having defined voids and that the core teeth being T-shaped.

Nakamura et al. discloses in figure #1 a core having a plurality of slots (S) in which coils (2) are fitted into the slots (S), and that a non-planar elongated retaining system (coils that act double as a retaining system)(2) having a void (drain hole)(9) that permits the flow of resin to form a mold onto the assembly. Nakamura et al. further discloses in figure #2 T-shaped teeth that extend from the base of the core (10 in which the distal ends of the teeth define a flange portion that extend over parts of the slots of the retaining system and that an adjacent surface of the flange portions above the adjacent slots non-planar surface to facilitate the encapsulation material into a void that is defined by an adjacent surface of the flange portion and the associated windings. The T-shaped teeth have proximal ends that are spaced apart from the distal ends in which the proximal ends are configured to matingly connect with a corresponding part of the base. Nakamura et al. 's process of having the liquid molding poured through the voids is to eliminate gas bubbles that are formed between the inner surface of the stator and the mold.

It would have been obvious to one of ordinary skill in the art to combine the structure of Keuper et al. with the resin molding of Nakamura et al. in order to eliminate gas bubbles that are formed between the inner surface of the stator and the mold.

In regards to claim #11, Keuper et al. and Nakamura et al. disclose the claimed invention except for the slot liner being made of flexible material.

In regards to claim # 13 Keuper et al. and Nakamura et al. disclose the claimed invention except for the encapsulation material being of an injection molded material. It would have been obvious one having ordinary skill in the art at the time the invention was made to choose a suitable material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claims 15, 16, 18, 22, 24 25, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keuper et al. (U.S. Patent 3940647) and in further view of Nakamura et al (U.S. Patent 4950438).

Keuper et al. discloses in Figure 3 a motor having an armature core (14) in which the teeth extend from a base of a core (14) and close in a distal end of the core (14). The teeth are spaced apart from each other and extend longitudinally between opposed sides of the base of a core that define the elongated slots (16) between the teeth. Furthermore, there is at least one set of windings (18 and 19) that surround at least one of the teeth. However, Keuper et al. does not disclose that an outer encapsulation covering is set onto windings.

Nakamura et al. discloses in Figure 2 a motor having an outer covering (top mold)(3) of a molded material that covers the core (1) and windings (2), in order to prevent unsatisfactory impregnation of the coils. Furthermore, a retaining system

(ring)(8) having a void (drain hole)(9) in which the liquid resin is poured through into the cavity in order coat the core of the assembly. In that the distal ends of the teeth are T-shaped flange portions in which each portion of the flange portion extends over part of an adjacent one of the associated slots (S), to form part of the retaining system and that each of the teeth have a proximal end spaced apart from the distal end to attach a corresponding part of the base. Additionally, a sheet of flexible material (elastic film) covers at least a substantial part of each of the windings (2) that are disposed within the associated slots (S) to separate the windings (2) from the sidewalls of the teeth.

It would have been obvious to one of ordinary skill in the art to combine the motor structure of Keuper et al. with that of the teeth and resin molding of Nakamura et al. in order the coat the core of the assembly in order to prevent imbregegnation of the coils.

In regards to claim # 16 Keuper et al. and Nakamura et al. disclose the claimed invention except for the injection molding being of conductive polymer. It would have been obvious one having ordinary skill in the art at the time the invention was made to choose a suitable material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claims 28 ,29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keuper et al. (U.S. Patent 3940647) and in further view of Nakamura et al (U.S. Patent 4950438).

Keuper et al. discloses in Figure 2 an armature assembly (14) having an electrically conductive means (rotor)(14), which have a plurality of spaced apart teeth for receiving means for provided an electrical field (coils)(18 and 19). The energized means (coils)(18 and 19) is provided with an associated receiving means (slot closure)(6) around at least a portion of the teeth and for retaining the windings in the slots. However, Keuper et al. does not disclose an encapsulation material into voids.

Nakamura et al. discloses in Figure 1 core teeth having slot liners (S) for retaining the coils (2). In which a resin mold is poured onto the coils and core as an encapsulation to retain the core with the assembly.

It would have been obvious to one of ordinary skill in the art to combine the motor structure of Keuper et al. with that of the teeth and resin molding of Nakamura et al. in order the coat the core of the assembly in order to prevent impregnation of the coils.

In regards to claim # 30 Keuper et al. and Nakamura et al. disclose the claimed invention except for the encapsulation material being of thermally conductive polymer. It would have been obvious one having ordinary skill in the art at the time the invention

was made to choose a suitable material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Allowable subject matter

Claims 3,4, 5, 6, 9, 14, 17, 27 are allowable over the prior art.

Claims 3,4,5,6,14,17, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Dependent claim 3 is allowed over the prior art, which do not disclose elongated grooves that extend through the teeth between the side edges near the ends to receive the retaining plates within the grooves in the associated tabs.

Dependent claims 4 and 5 are allowed for dependency on claim 3.

Dependent claim 6 is allowed over the prior art, which do not indicate an aperture that extends through the retaining plate to facilitate flow of the encapsulation material into a space between the retaining plate and the associated windings.

Dependent claim #9 is allowable over the prior art, which do not disclose a non-polar surface of the flange portion to corrugate the flow of the encapsulation material between the flange portion and the associated windings.

Dependent claim #14 is allowable over the prior art which do not disclose a varnish material that is applied to the armature assembly and that the injection molded material is applied to the armature assembly over the varnish material.

Dependent claim #17 is allowed over the prior art which do not disclose the protrusions of thermally conductive polymer molded in-situ into an outer surface of the outer covering.

Dependent claim #19 is allowable over the prior art, which does not disclose a retaining system having an elongated sheet of a substantially rigid material positioned in each of the associated slots near the distal end of associated teeth to hold the windings in the associated slots.

Dependent claims #20 to #21 are allowed for dependency of claim 19.

Dependent claim #23 is allowable over the prior art which do not indicate an adjacent surface of each of the flange portions having the non-planar surface that interfaces with associated windings to provide voids between the flange portion and the associated windings, in which some of the plastic material extends into the voids to facilitate the attachment of the plastic material.

Dependent claim #27 is allowed over the prior art, which does not disclose a layer of varnish material applied to the core, and the windings in which the outer covering being applied over the varnish to which it encapsulates at least a substantial part of the core and windings.

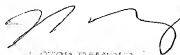
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30-3:30), and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HYE
June 20, 2003


NESTOR RAMIREZ
SENIOR PATENT EXAMINER
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